MICS PI Meeting
June 26-27, 2002

Breakout Group Questions

Objective

Describe the ways in which you would like to see the ***basic research*** activities funded by the MICS-CS program evolve over the next 3-5 years. We're interested in both modest evolutionary changes needed with current funding, and in making the case for additional funding for CS research.

Focus Area/Background

MICS CS research is motivated by terascale computing. Coming changes in the scale of systems will induce fundamental changes in the way we do science. Petaflop machines are coming. However, several radically different designs for these systems are possible. They include:

- Systems having 100K node clusters
- Earth Simulator – style systems
- Combination architectures based on PIM's or other new technologies.

Moreover the stability, reliability and "architectural coherence" of coming petaflops systems are open questions. Now is the time to execute the CS research needed to enable applications to utilize these systems effectively, in spite of the design uncertainty. Both performance and ease of use need to be emphasized.

Questions

1. Given current activity in your topic area, what are the unfunded (and/or under-funded) basic research issues critical to our ability to exploit next generation systems? What are the key challenges / barriers we must address to exploit peta-scale systems? How would you phrase an RFP to focus work on these topics?

2. What do you need most from the other four CS research groups (programming models and runtime, visualization/data, interoperability/portability, performance, OS environments) to enable your future progress and enhance the effectiveness of your work?

3. What are the current gaps in the MICS CS research portfolio related to the possibilities and potential for peta-scale computing? What new topic areas should we be adding to the MICS portfolio?

In general, "just give us more money to do exactly what we're doing now," won't be considered an acceptable answer …